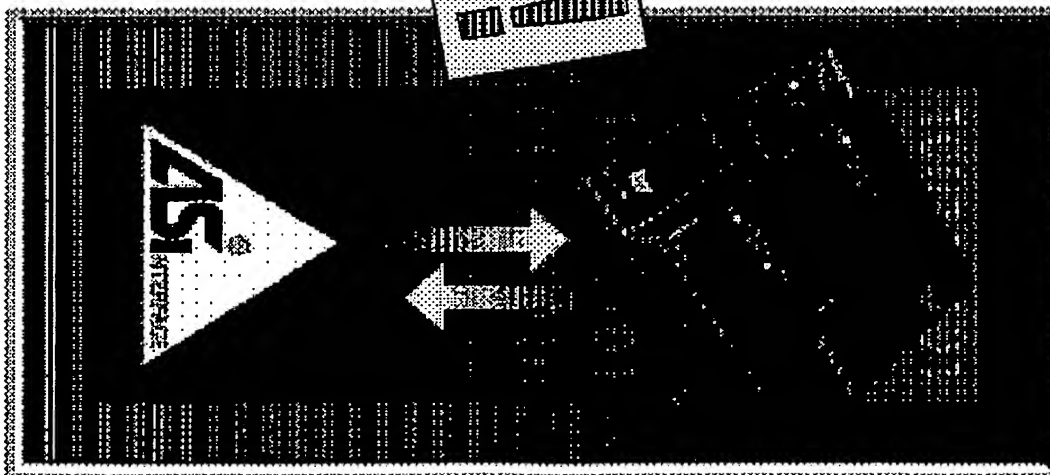
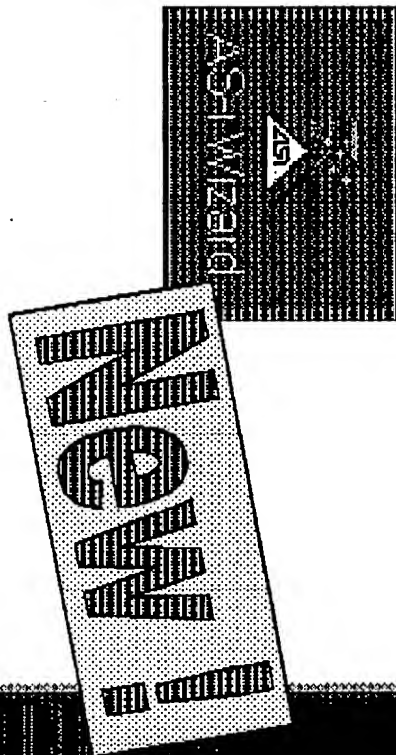
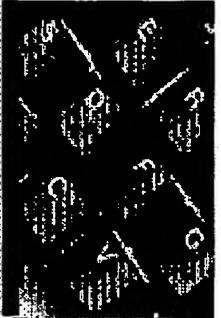


AS-i Wizard in STEP 7-Micro/WIN V3.2 Service Pack 1 (V3.2.1)



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AS-i Wizard

AS-i Wizard

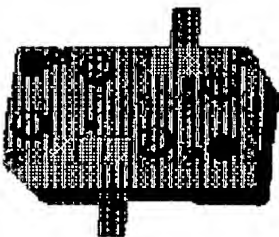


AS-i for opportunities in lowest levels of automation

- AS-i = Actuator Sensory-interface
- AS-i systems consist of a master(CP243-2) and slave nodes that transmit simple binary signals to the master
- A dominant competitor in binary networks is Allen-Bradley's DeviceNet



AS-i CP 243-2 (Master)



AS-i Slave



AS-i Network Cable



SIEMENS

AS-i Wizard

SIEMENS



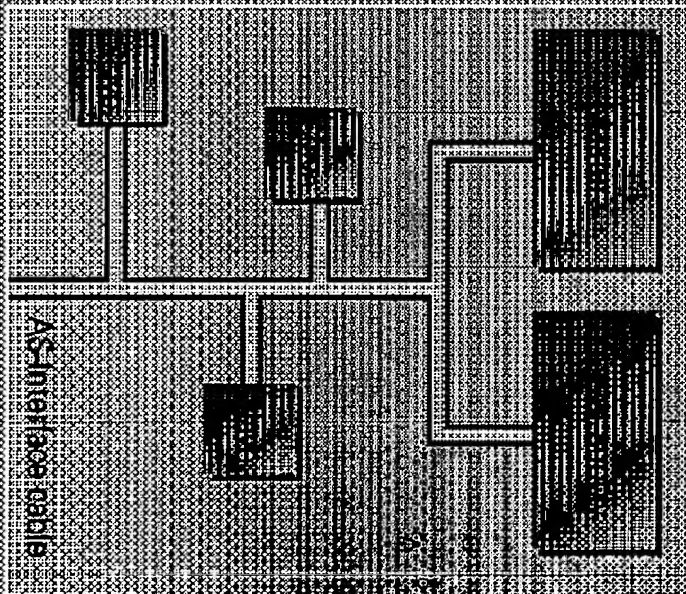
AS-i Wizard



Minimum configuration of an

AS-i Network:

- One Master (CP243-2)
- Power Supply
- Slave(s)
- One control module (master) in the AS-Interface network which polls the data of the other nodes (slaves) at precisely defined intervals.
- Simple two-wire cables without shielding or PE conductor are used to carry both data and the auxiliary power for the sensors simultaneously.



AS-i Wizard

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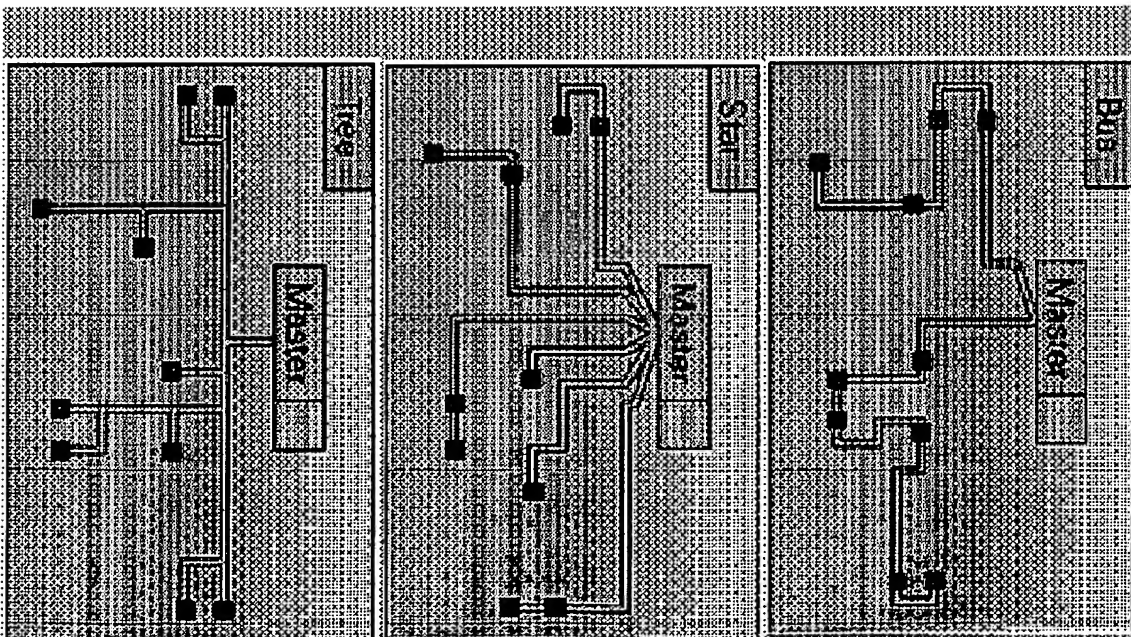


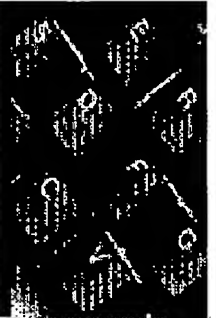
AS-i Wizard

NEW!!!

Bus, Star, or Tree Network Configurations are possible

- The AS-Interface functions without any problem with standard components up to a length of 500 m – without repeaters or extenders up to 100 meters.
- Consult the AS-i documentation for additional details on network configurations, use of repeaters, etc.





AS-i Wizard

AS-i Wizard



Without an AS-i wizard

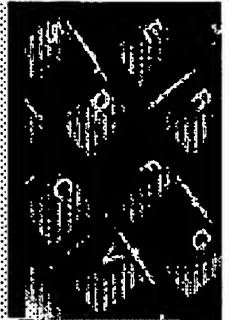
- For S7-200 to work with AS-i, PLC programming for CP243-2 is required
- Programmer's logic must build and maintain an image register
- PLC logic to coordinate reads & writes from CP to PLC
- Tedious and error-prone
- Required to know PLC details and AS-i CP details

Advantages of AS-i wizard

- Wizard screens guide customer by asking for needed parameters
- When wizard finishes:
 - AS-i Sub-routine instructions are created based on wizard settings
 - AS-i Symbol tables are created
- Compares & updates configurations (online)
- Focus on utilizing the AS-i data, not debugging PLC logic
- Much easier - Reduces amount of programming complexity and time
- Reduces amount of technical expertise needed



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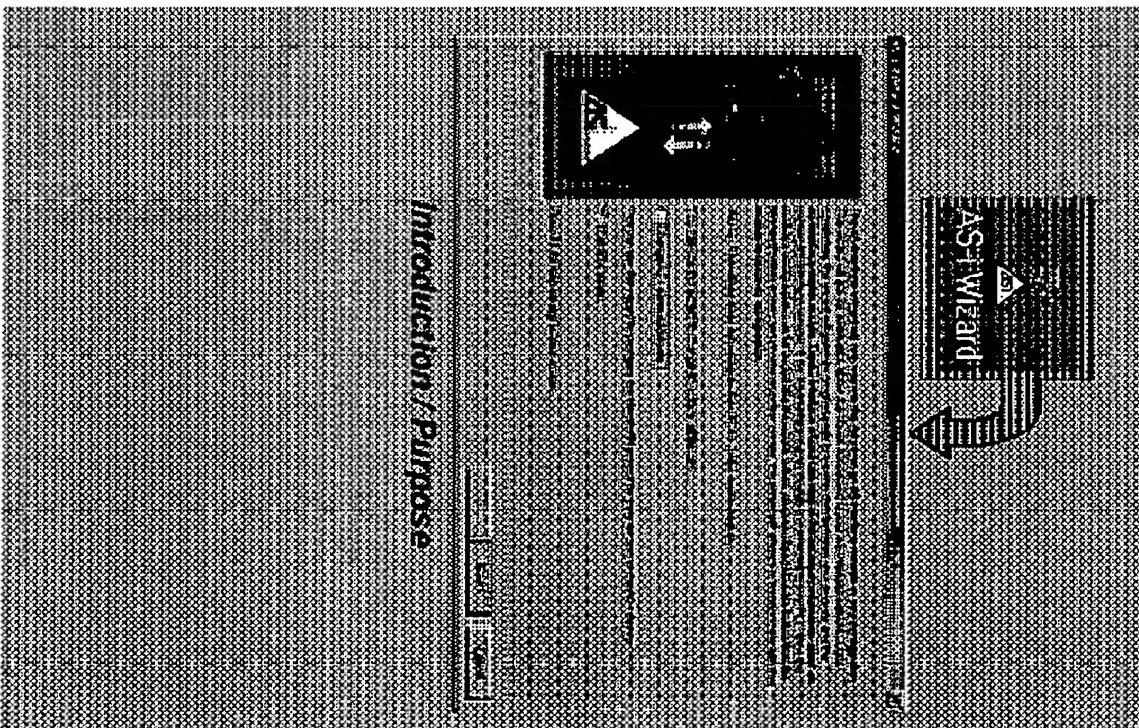
AS-i Wizard

AS-i Wizard



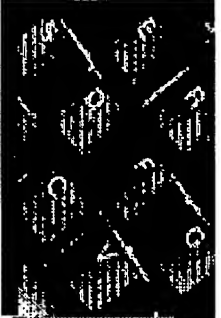
Configuring an AS-i Network

- Access the wizard by clicking 'Tools' on the navigation bar, then clicking the AS-i icon.
- Consistent with other Intelligent module wizards (Context-sensitive help, etc.)
- The AS-i wizard provides a way to easily set up data transfers between the S7-200 PLC and the AS-i CP243-2 module.
- The AS-i wizard *does not* provide or replace the normal AS-i master configuration.
- When Micro/WIN is connected to an online AS-i network, the wizard is able to read and compare slaves on the existing network.



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AS-i Wizard



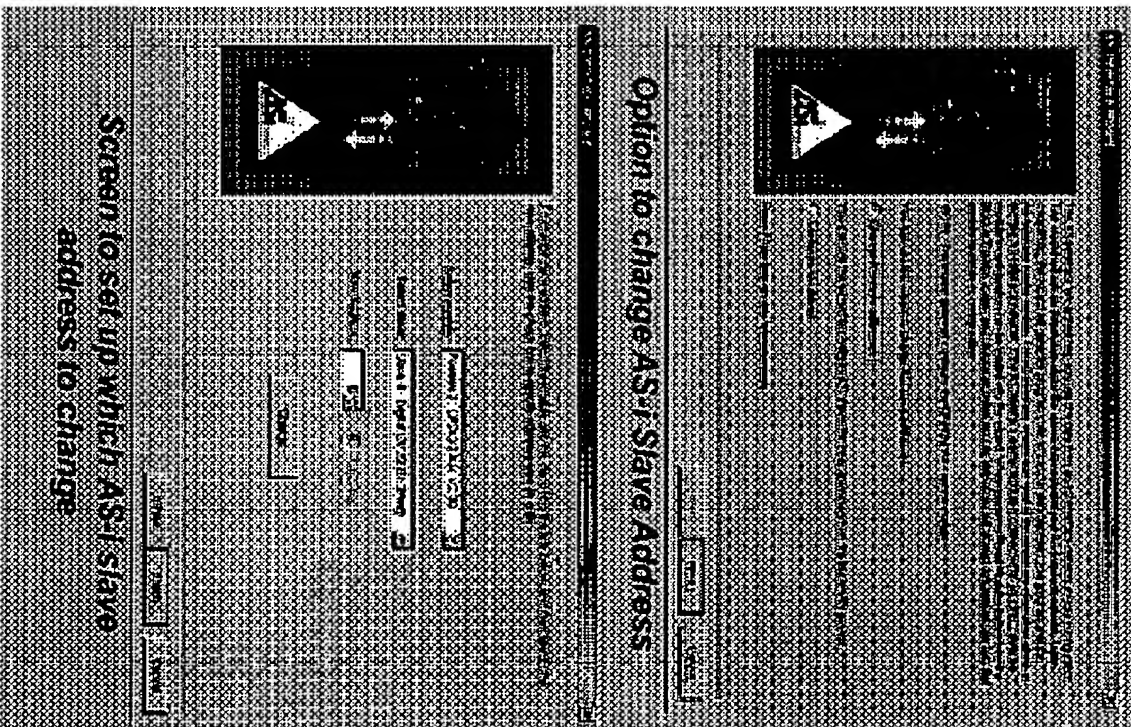
AS-i Wizard

AS-i Wizard Options

- The wizard introduction screen allows 2 options:
- Change the address of a known **online** slave.
- Map a AS-i network to the PLC

To change AS-i Slave address

- A screen is displayed to set up the changes:
- specify module position, current slave address, and new slave address
- Press the 'Change' button.
- After a slave address has been changed (after running the wizard and address is successfully changed), then the CP243-2 reset button must be pressed (or else reset must be invoked with a hand-held programmer)



AS-i Wizard

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AS-i Wizard

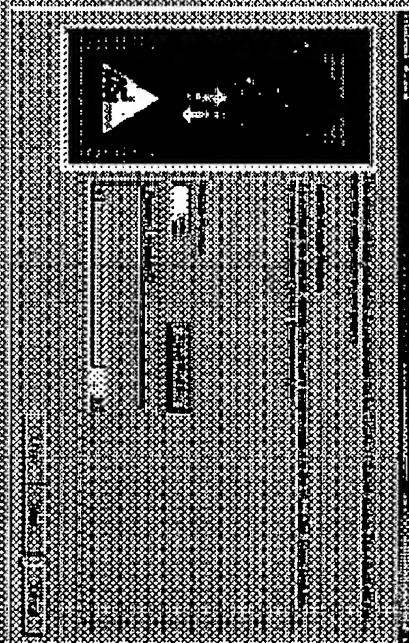


Module Position Assignment

- Like all wizards, if Micro/WIN is connected to online PLC, the EM location can be found and displayed.

Re-reading the configuration

- If an AS-i configuration already exists in your project, when you run the AS-i wizard again...then, on this screen:
- The wizard detects existing configurations and asks whether you wish to modify an existing configuration or create a new configuration.
- Options will also allow programmer to delete or move the existing configuration to a different module position.



Module Position Assignment



Edit Existing Configuration: Move/Delete

AS-i Wizard

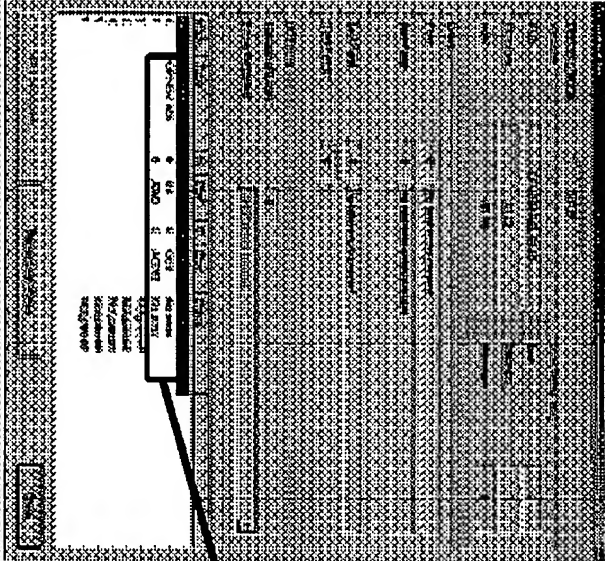
SIEMENS



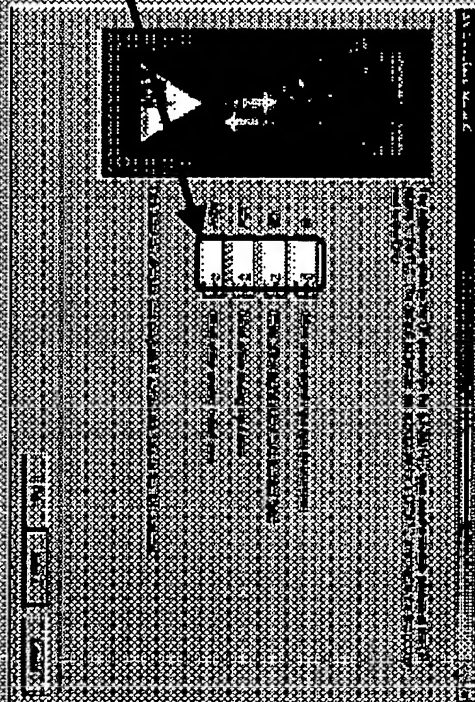
AS-i Wizard



When PLC is attached to an online AS-i network, look in PLC Info dialog. The CP243-2 to PLC mapping is shown.



PLC Memory areas (offsets) to use



The wizard assists the programmer in setting correct CP offsets:

- Settings depend on: (1) CPU type and (2) AS-i CP module position.
- Offline configurations data can be optionally modified.
- Invalid configuration settings will trigger an error message from the wizard.
- For online EM configurations, offsets are automatically fixed and disabled (grayed out).

AS-i Wizard

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AS-i Wizard



Select type(s) of AS-i slaves to
configure on your network



31 maximum slaves are allowed for:
 ■ Standard digital slaves
 ■ Digital Slaves w/ Extended Addr. A
 ■ Analog Slaves (Profile 7.3/7.4)
 These 3 slave types share the same 31 slave
 addresses. Therefore, NO DUPLICATE
 addresses are allowed among the 3 types.

31 maximum slaves are allowed for:
 ■ Standard digital slaves
 ■ Digital Slaves w/ Extended Addr. A
 ■ Analog Slaves (Profile 7.3/7.4)
 These 3 slave types share the same 31 slave
 addresses. Therefore, NO DUPLICATE
 addresses are allowed among the 3 types.

31 maximum slaves are allowed for:
 ■ Digital Slaves w/ Extended Addr. B
 The Ext B slaves CANNOT OVERLAP any slave
 types except with Digital Extended A type.

The purpose of Extended slaves (A&B) is to allow a
 maximum of 62 slave nodes on one network.

Select the type of AS-i slaves on your network

- Different slave types have unique ID codes embedded in the data frames.
 - Subsequent wizard screens depend on selections made on this screen.
 - For online EM configurations, module types are automatically set, and the checkboxes are grayed out (disabled).
- ### Overlapped AS-i slave addresses

- For instance, there cannot be a Standard Digital Slave #2 & Analog Slave #2.
- When a slave address is already used, then the slave address column is grayed out (unavailable) to slaves in other charts. -See the following slides.

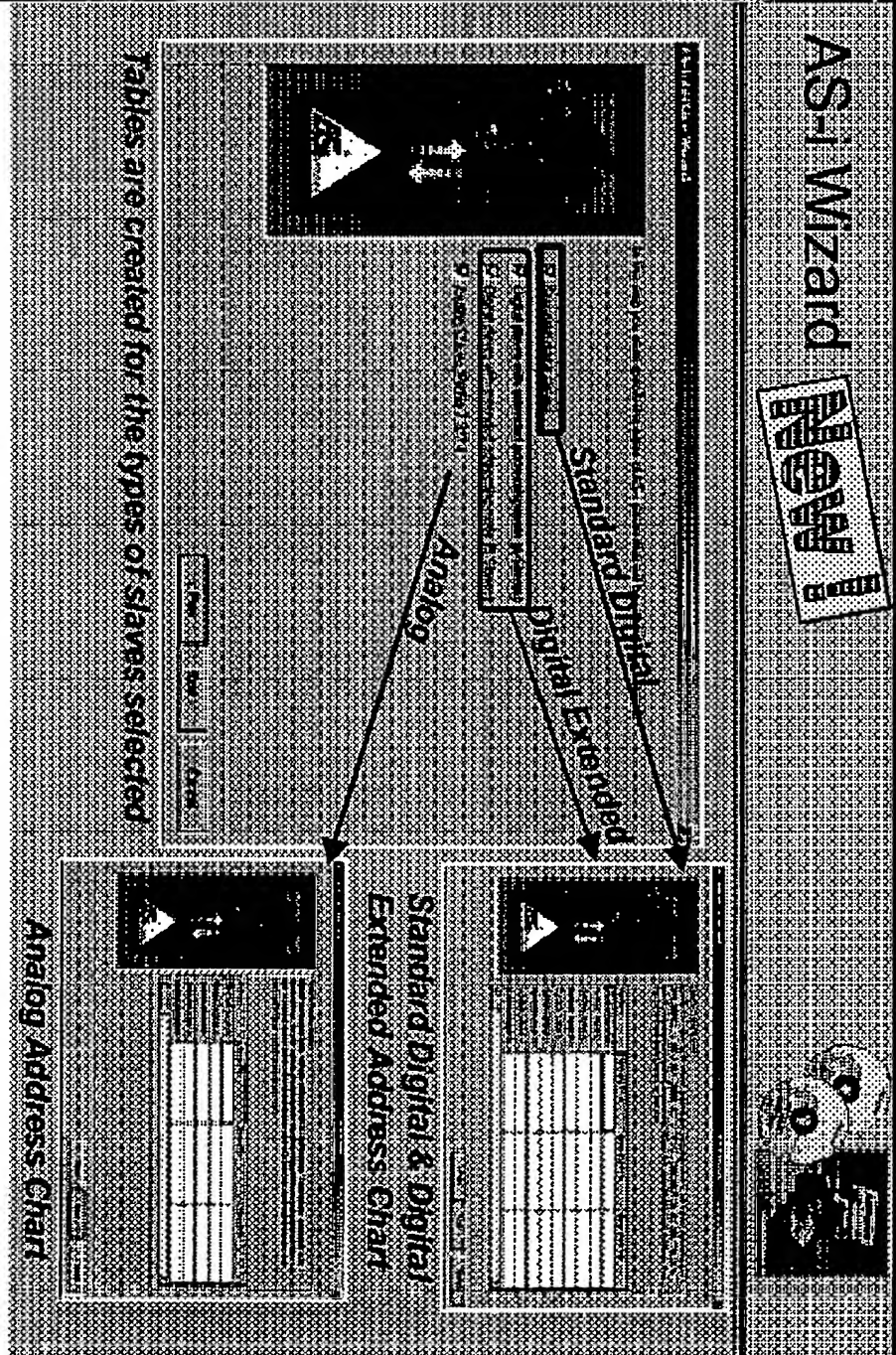
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AS-i Wizard

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AS-i Wizard



Organization of the AS-i slave types in the charts

- All of the selected digital slave types appear in one Digital chart.
- When both Standard Digital & Digital Ext.Address A types are selected, they both occupy the same chart columns. Example: #1 / #1A
- Digital Ext.Address B types follow any Standard Digital/Ext. A slaves in the digital chart. Example: #1 - #31 followed by #1B - #31B

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AS-i Wizard

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AS-i Wizard



1. Click top row for a drop-down list-box that allows you to select the slave's I/O configuration. Once selected, I/O's appear that match the selected configuration.

2. Symbols for individual slave I/O are assigned default symbols. You may modify the symbols in the chart.

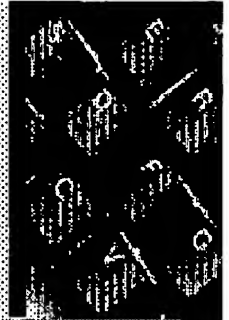
Default Symbol Example: DI01_2
 DI = Digital Input,
 0 = Module Position (Slot) 0,
 1 = Slave Address 1,
 2 = Input 2

3. A scroll bar is used to access all slave addresses.

How a chart works

Setting up the slave data in the chart(s)

- After finishing the wizard, the slave I/O symbols appear in a symbol table.
- These symbols are for later use in the PLC program logic.
- The symbol table is re-generated when the wizard is re-run (each time 'Finish' button is pressed) for the same AS-i CP243-2 network configuration.

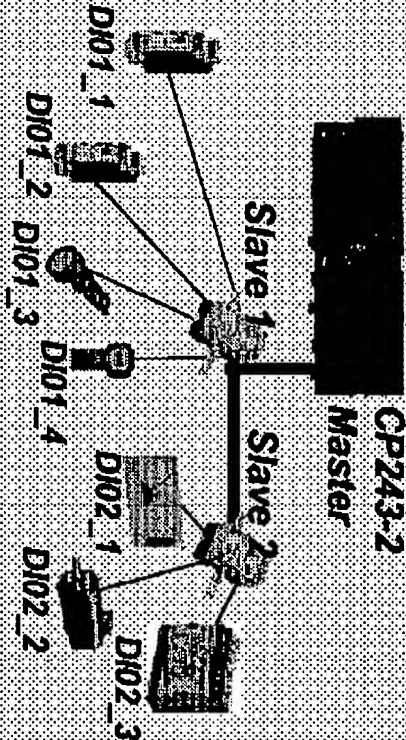


AS-i Wizard

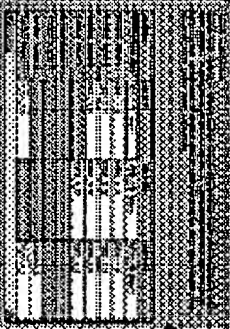


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AS-1 Wizard



AS-i Slaves with AS-i I/O devices



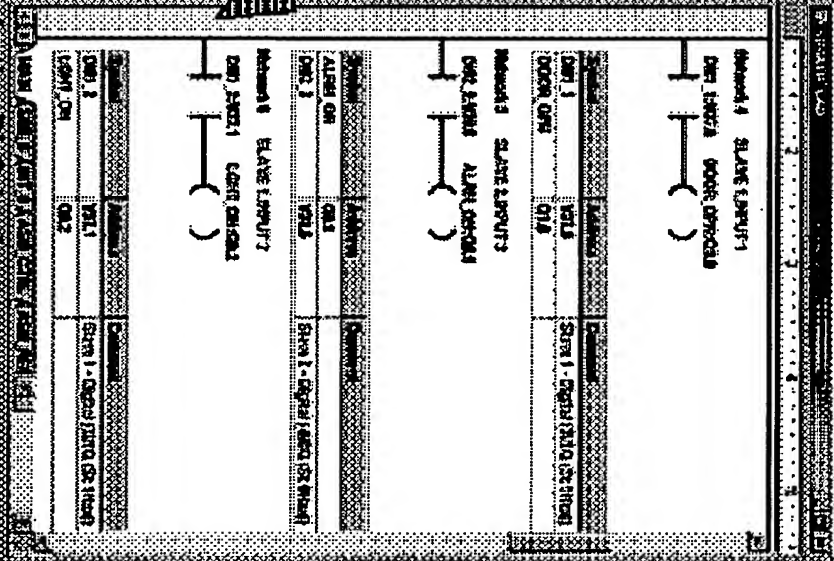
Char inputs match I/O

-Finishing wizard generates ASCII symbols

Chart symbols link PLC logic to the actual AS-i slaves

- Simply use wizard generated symbols and SBR's in your PLC logic
- The ASix_CTRL instruction causes constant updating from AS-i CP243-2

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AS-i Wizard

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AS-i Wizard



Memory Allocation

The program is used to allocate memory for the project. The user can specify the amount of memory to be allocated for the project. The program will then allocate the memory and display the results.

AS-i Wizard Configuration Summary

The program is used to configure the AS-i Wizard. The user can specify the amount of memory to be allocated for the project. The program will then allocate the memory and display the results.

Final Wizard Screens

- Memory Allocation screen suggests available project space.
- The summary screen shows all project additions (SRB's, DB, Symbols).
- The summary screen gives advice about how to use the new additions.

AS-i Wizard

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AS-i Wizard



Symbol Table

1	2	3	4	5	6
Symbol	Address	Comment			
DI0.1	V1.6	Slave 2.3			
DI0.2	V1.6	Slave 2.3			
DI0.3	V1.6	Slave 2.3			
DI0.4	V1.6	Slave 2.3			
DI0.5	V1.6	Slave 2.3			
DI0.6	V1.6	Slave 2.3			
DI0.7	V1.6	Slave 2.3			
DI0.8	V1.6	Slave 2.3			
DI0.9	V1.6	Slave 2.3			
DI0.10	V1.6	Slave 2.3			
DI0.11	V1.6	Slave 2.3			
DI0.12	V1.6	Slave 2.3			
DI0.13	V1.6	Slave 2.3			
DI0.14	V1.6	Slave 2.3			
DI0.15	V1.6	Slave 2.3			
DI0.16	V1.6	Slave 2.3			
DI0.17	V1.6	Slave 2.3			
DI0.18	V1.6	Slave 2.3			
DI0.19	V1.6	Slave 2.3			
DI0.20	V1.6	Slave 2.3			
DI0.21	V1.6	Slave 2.3			
DI0.22	V1.6	Slave 2.3			
DI0.23	V1.6	Slave 2.3			
DI0.24	V1.6	Slave 2.3			
DI0.25	V1.6	Slave 2.3			
DI0.26	V1.6	Slave 2.3			
DI0.27	V1.6	Slave 2.3			
DI0.28	V1.6	Slave 2.3			
DI0.29	V1.6	Slave 2.3			
DI0.30	V1.6	Slave 2.3			
DI0.31	V1.6	Slave 2.3			
DI0.32	V1.6	Slave 2.3			
DI0.33	V1.6	Slave 2.3			
DI0.34	V1.6	Slave 2.3			
DI0.35	V1.6	Slave 2.3			
DI0.36	V1.6	Slave 2.3			
DI0.37	V1.6	Slave 2.3			
DI0.38	V1.6	Slave 2.3			
DI0.39	V1.6	Slave 2.3			
DI0.40	V1.6	Slave 2.3			
DI0.41	V1.6	Slave 2.3			
DI0.42	V1.6	Slave 2.3			
DI0.43	V1.6	Slave 2.3			
DI0.44	V1.6	Slave 2.3			
DI0.45	V1.6	Slave 2.3			
DI0.46	V1.6	Slave 2.3			
DI0.47	V1.6	Slave 2.3			
DI0.48	V1.6	Slave 2.3			
DI0.49	V1.6	Slave 2.3			
DI0.50	V1.6	Slave 2.3			
DI0.51	V1.6	Slave 2.3			
DI0.52	V1.6	Slave 2.3			
DI0.53	V1.6	Slave 2.3			
DI0.54	V1.6	Slave 2.3			
DI0.55	V1.6	Slave 2.3			
DI0.56	V1.6	Slave 2.3			
DI0.57	V1.6	Slave 2.3			
DI0.58	V1.6	Slave 2.3			
DI0.59	V1.6	Slave 2.3			
DI0.60	V1.6	Slave 2.3			
DI0.61	V1.6	Slave 2.3			
DI0.62	V1.6	Slave 2.3			
DI0.63	V1.6	Slave 2.3			
DI0.64	V1.6	Slave 2.3			
DI0.65	V1.6	Slave 2.3			
DI0.66	V1.6	Slave 2.3			
DI0.67	V1.6	Slave 2.3			
DI0.68	V1.6	Slave 2.3			
DI0.69	V1.6	Slave 2.3			
DI0.70	V1.6	Slave 2.3			
DI0.71	V1.6	Slave 2.3			
DI0.72	V1.6	Slave 2.3			
DI0.73	V1.6	Slave 2.3			
DI0.74	V1.6	Slave 2.3			
DI0.75	V1.6	Slave 2.3			
DI0.76	V1.6	Slave 2.3			
DI0.77	V1.6	Slave 2.3			
DI0.78	V1.6	Slave 2.3			
DI0.79	V1.6	Slave 2.3			
DI0.80	V1.6	Slave 2.3			
DI0.81	V1.6	Slave 2.3			
DI0.82	V1.6	Slave 2.3			
DI0.83	V1.6	Slave 2.3			
DI0.84	V1.6	Slave 2.3			
DI0.85	V1.6	Slave 2.3			
DI0.86	V1.6	Slave 2.3			
DI0.87	V1.6	Slave 2.3			
DI0.88	V1.6	Slave 2.3			
DI0.89	V1.6	Slave 2.3			
DI0.90	V1.6	Slave 2.3			
DI0.91	V1.6	Slave 2.3			
DI0.92	V1.6	Slave 2.3			
DI0.93	V1.6	Slave 2.3			
DI0.94	V1.6	Slave 2.3			
DI0.95	V1.6	Slave 2.3			
DI0.96	V1.6	Slave 2.3			
DI0.97	V1.6	Slave 2.3			
DI0.98	V1.6	Slave 2.3			
DI0.99	V1.6	Slave 2.3			
DI0.100	V1.6	Slave 2.3			

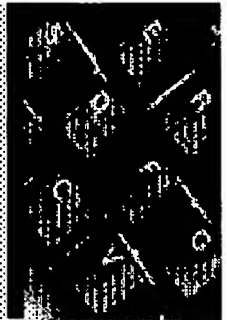
AS-i Configuration Symbols for each I/O Point

1	2	3	4	5	6
Symbol	Address	Comment			
DI0.1	V1.6	Slave 2.3			
DI0.2	V1.6	Slave 2.3			
DI0.3	V1.6	Slave 2.3			
DI0.4	V1.6	Slave 2.3			
DI0.5	V1.6	Slave 2.3			
DI0.6	V1.6	Slave 2.3			
DI0.7	V1.6	Slave 2.3			
DI0.8	V1.6	Slave 2.3			
DI0.9	V1.6	Slave 2.3			
DI0.10	V1.6	Slave 2.3			
DI0.11	V1.6	Slave 2.3			
DI0.12	V1.6	Slave 2.3			
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DI0.14	V1.6	Slave 2.3			
DI0.15	V1.6	Slave 2.3			
DI0.16	V1.6	Slave 2.3			
DI0.17	V1.6	Slave 2.3			
DI0.18	V1.6	Slave 2.3			
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DI0.20	V1.6	Slave 2.3			
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DI0.29	V1.6	Slave 2.3			
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DI0.44	V1.6	Slave 2.3			
DI0.45	V1.6	Slave 2.3			
DI0.46	V1.6	Slave 2.3			
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DI0.48	V1.6	Slave 2.3			
DI0.49	V1.6	Slave 2.3			
DI0.50	V1.6	Slave 2.3			
DI0.51	V1.6	Slave 2.3			
DI0.52	V1.6	Slave 2.3			
DI0.53	V1.6	Slave 2.3			
DI0.54	V1.6	Slave 2.3			
DI0.55	V1.6	Slave 2.3			
DI0.56	V1.6	Slave 2.3			
DI0.57	V1.6	Slave 2.3			
DI0.58	V1.6	Slave 2.3			
DI0.59	V1.6	Slave 2.3			
DI0.60	V1.6	Slave 2.3			
DI0.61	V1.6	Slave 2.3			
DI0.62	V1.6	Slave 2.3			
DI0.63	V1.6	Slave 2.3			
DI0.64	V1.6	Slave 2.3			
DI0.65	V1.6	Slave 2.3			
DI0.66	V1.6	Slave 2.3			
DI0.67	V1.6	Slave 2.3			
DI0.68	V1.6	Slave 2.3			
DI0.69	V1.6	Slave 2.3			
DI0.70	V1.6	Slave 2.3			
DI0.71	V1.6	Slave 2.3			
DI0.72	V1.6	Slave 2.3			
DI0.73	V1.6	Slave 2.3			
DI0.74	V1.6	Slave 2.3			
DI0.75	V1.6	Slave 2.3			
DI0.76	V1.6	Slave 2.3			
DI0.77	V1.6	Slave 2.3			
DI0.78	V1.6	Slave 2.3			
DI0.79	V1.6	Slave 2.3			
DI0.80	V1.6	Slave 2.3			
DI0.81	V1.6	Slave 2.3			
DI0.82	V1.6	Slave 2.3			
DI0.83	V1.6	Slave 2.3			
DI0.84	V1.6	Slave 2.3			
DI0.85	V1.6	Slave 2.3			
DI0.86	V1.6	Slave 2.3			
DI0.87	V1.6	Slave 2.3			
DI0.88	V1.6	Slave 2.3			
DI0.89	V1.6	Slave 2.3			
DI0.90	V1.6	Slave 2.3			
DI0.91	V1.6	Slave 2.3			
DI0.92	V1.6	Slave 2.3			
DI0.93	V1.6	Slave 2.3			
DI0.94	V1.6	Slave 2.3			
DI0.95	V1.6	Slave 2.3			
DI0.96	V1.6	Slave 2.3			
DI0.97	V1.6	Slave 2.3			
DI0.98	V1.6	Slave 2.3			
DI0.99	V1.6	Slave 2.3			
DI0.100	V1.6	Slave 2.3			

Symbols for each AS-i POU

Project is Appended By the Wizard (when 'Finish' is pressed)

- Creates a symbol table of I/O points for all the configured AS-i slaves.
- Adds the new AS-i-POU's (SBR's) to the System POU Symbol table
- Use symbols from the AS-i symbol table in creating the PLC program logic
- Using the wizard (re-running the entire wizard) to change an existing configuration causes the AS-i symbol table to be re-generated (overwritten).



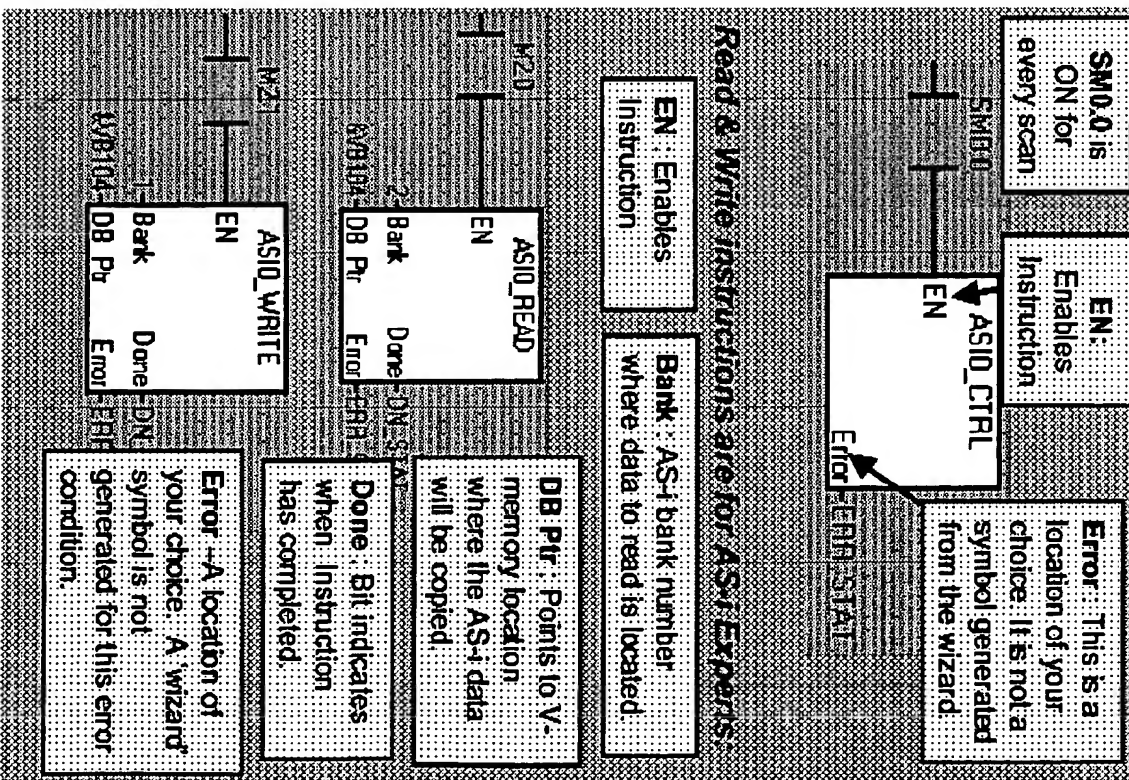
AS-i Wizard



Instructions Added to Tree

- New AS-i subroutines are added to the project's instruction tree
- **ASix_CTRL** Instruction is used to copy slave data between the AS-i CP module and the PLC (to be called every scan).
- The read and write instructions are for **AS-i experts**: they require you to know the bank number of the data*
- **ASix_READ** Instruction is used to read bank data from the CP module (from CP to V memory).
- **ASix_WRITE** Instruction is used to write bank data to the CP (from V memory to CP)

* Find details about AS-i in the CP243-2 AS-i manual.



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AS-i Wizard

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AS-i Wizard



Compares the Offline & Online Configuration

- Option to compare an online PLC configuration with the offline Micro/WIN wizard configuration
- After comparing, the Micro/WIN configuration can be updated to match the online configuration
- Selecting 'Update' will:
 - Add missing slaves to your configuration.
 - Replace (write over) any offline slaves that exist with the same address(es).

Compares Offline to Online / Updates



AS-i Wizard

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AS-i Wizard



Without an AS-i wizard

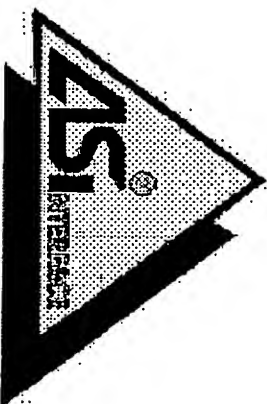
- Configuring S7200-to-AS-i interfaces requires complex AS-i knowledge including program of the control/status bits, handling image registers, etc.

With an AS-i wizard

- Even beginning programmers can configure AS-i connections
- Reduces time for interfacing to an AS-i network setup
- Reduces time for modifying slaves (re-run wizard, online compare, change slave address)
- Wizard generated instructions and symbols are makes programming with the AS-i data very simple and straightforward

Summary

- Expands customers' usability with AS-i
- Increases S7-200 PLC capabilities in low-end a
- Allows opportunities in more application areas



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